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ABSTRACT

A Nonequivalent Control Group Design, an analytical evaluation technique, was used to assess the effectiveness of an individualized inservice approach for vocational teachers of disadvantaged learners in Pennsylvania. The experimental group consisted of vocational teachers volunteering to participate in an individualized inservice program; the control group consisted of vocational education teachers enrolled in an inservice graduate course. In addition to the teachers, administrators in the teachers' local schools and resource team members from the university working with the teachers provided feedback regarding the teachers' abilities to work with disadvantaged students. Both groups were administered four instruments designed to assess competence in performing tasks related to teaching the disadvantaged and to determine the perceived effectiveness of the inservice training program. Data revealed that teachers approved of both approaches. Analysis of posttest scores indicated teachers in both groups showed an increase in their competency to work with the disadvantaged. (Instruments are appended. Thirteen tables are provided.) (YLB)

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FINAL REPORT

AN IMPACT ANALYSIS OF AN INSERVICE RESOURCE TEAM APPROACH FOR TEACHERS OF DISADVANTAGED LEARNERS

(Project Number 83-4014)

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June 1984

PENNSYLVANIA DEPARTMENT OF EDUCATION
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ABSTRACT

Title: An Impact Analysis of An Inservice Instructional Resource Team Approach for Teachers of Disadvantaged Learners

Submitted by: Thrisha G. Shiver

Total Funds Requested: $2,000

Beginning & Ending Dates: December 1, 1983 - June 30, 1984

Objective:

The objective of this study was to assess the effectiveness of an individualized inservice approach for vocational teachers of disadvantaged learners in Pennsylvania. This study used an analytical evaluation technique rather than the more traditional descriptive evaluation techniques.

A Nonequivalent Control Group Design was employed to determine the effectiveness of the inservice program. The population consisted of vocational teachers volunteering to participate in an individualized inservice program (experimental group). The individualized inservice approach was specifically designed to offer on-site training to vocational education teachers of disadvantaged learners. The control group consisted of vocational education teachers enrolled in the inservice graduate course, Vocational Education for Special Needs Learners. In addition to the teachers in the study, administrators in the teachers' local school and resource members from the university working with the teachers provided feedback regarding the teachers' abilities to work with disadvantaged students. Both groups were administered four instruments designed to (1) assess the teacher's level of competence in performing tasks related to teaching the disadvantaged, and (2) determine the perceived effectiveness of the inservice training program.

The data from the study indicated that both inservice approaches (individualized inservice and formal course) seemed to have been successful in that all participants indicated improvement in their abilities to work with disadvantaged students.

PROCEDURES

Purpose

The purpose of this study was to assess the effectiveness of an individualized inservice program designed to improve vocational teachers' abilities to work with disadvantaged students.

Procedures

1. Conduct a review of literature on general evaluation of educational programs and the evaluation criteria for special needs programs by using the following resources: The Pennsylvania Department of Education's VEIN network, ERIC, Dissertation Abstracts, and CIJE.

2. Administer a needs assessment pretest to teachers participating in the project.

3. A resource team member will be assigned to each teacher participating in the project. The resource member will assist teachers in such areas as identification and assessment, lesson planning, curriculum modification and evaluation techniques for serving disadvantaged learners in regular vocational education programs.

4. Upon completion of a ten (10) week training period, teachers will complete a needs assessment posttest and a questionnaire (Q-sort items) to evaluate the effectiveness of the program. Half of the Q-sort items will assess the change in the teacher's area of knowledge, attitude, and behavior. The remaining half of the Q-sort items will require the teacher to give an estimate of the change in their disadvantaged students as a result of the project.

5. Data will be analyzed using the university computer and the appropriate statistical procedures.

6. Analyzed data will be summarized, conclusions rendered, and recommendations made.

7. A final report will be written and copies forwarded to the funding agency. Articles describing the study and its outcomes will be submitted for publications in national journals.

CHAPTER I

RELATED RESEARCH

As vocational education for special needs learners, namely, the disadvantaged and handicapped, became a national priority, the United States Congress recognized the accompanying need to improve the competence of vocational education personnel working with special needs students (Batsche, 1980). The Personnel Training Section of the Vocational Education Act of 1976 (Public Law 94-482) identified vocational education teachers of special needs learners as a priority for teacher education programs. Specifically, P. L. 94-482 was intended ". . . to improve the state's vocational education programs by improving the qualifications of persons serving or preparing to serve in vocational educational programs" (Federal Register, 1977, p. 42492). Public Law 94-482 also provided funds for programs and activities designed to improve the quality of instruction; guidance and counseling activities; and the administration of programs for special needs populations.

Meers (1981) emphasized the permanent involvement of special needs students in vocational education. The involvement of special needs learners is not an educational fad that will disappear within a few years. The inclusion of special needs learners in vocational education represents an integral part of the total educational delivery system. Several studies (Combs, Blume, Newman, & Wass, 1974; Wakefield & Crowl, 1974; & Jones, 1972) have clearly shown that nationally, schools are experiencing difficulty in addressing the unique needs of special needs learners. Bowen (1981) indicated that part of this dilemma has been caused by the inability of vocational educators to deal effectively with the needs of this student population.

There exists a need to provide preservice and inservice vocational teacher education programs that will adequately prepare teachers to meet specific needs of disadvantaged and handicapped students enrolled in vocational education. According to Bowen (1981), colleges and universities have not adequately kept pace with the need to

provide inservice education. Specifically, few teacher education programs are available to: (a) provide preservice training in order to develop a cadre of teachers competent to teach the handicapped; (b) provide inservice training to the large labor force of vocational teachers seeking to develop appropriate skills to work with children having special needs; and, (c) provide preservice and inservice training to personnel who administer, coordinate, and supervise comprehensive programs related to vocational and special education services (Bowen, 1981, p. 50).

Batsche (1980) indicated not only is there a need for the formulation of teacher training programs, but the evaluation of such staff development activities is essential if they are to meet the changing needs of participants. Unfortunately, formal evaluation is often difficult or not conducted because it is viewed as threatening, time-consuming, and/or unimportant. However, evaluation may be used to improve the quality of decisions made about future activities, to provide accountability, to access effectiveness, to make comparisons of delivery styles, and to redefine the needs and goals of participants.

Statement of the Problem

Historically, inservice education has been an ineffective, haphazard, and incidental teacher education component (Edelfelt & Lawrence, 1975; Meade, 1971). Browder (1982) indicated that effectiveness of such inservice education is unknown because of the failure to impliment adequate evaluation approaches.

Traditionally, techniques for evaluating the effectiveness of inservice education programs consisted of an evaluation form designed to obtain participants' impressions of the activities. Ehersman, Hanel, and Robertson (1976), Wentling (1980), and Browder (1982) indicated such an evaluation approach provides helpful information; however, such an approach represents only a superficial attempt to assess the programs' impact on teachers and makes no attempt to assess the impact on students. Such types of evaluation have been viewed as relying too heavily on descriptive procedures rather than the more analytic procedures. Browder (1982) further indicated that in order to apply analytical

procedures for measuring effectiveness, an evaluation of inservice education objectives was needed. More important, but seldom measured, are objectives related to changes in teachers' and students' behaviors. In addition to these outcome measures, inservice education effectiveness may also be evaluated in terms of inputs such as staff time and financial costs. Browder (1982) posits that if all inservice program reports included such measures, programs could identify the most efficient procedures for meeting specific inservice needs. Hence, the need for evaluating inservice programs by applying a research design is evident. Such a process may provide objective evidence of the program's impact.

The general purpose of this study was to assess the effectiveness of an individualized inservice approach for vocational education teachers of disadvantaged learners. This study used an analytical evaluation technique rather than the more traditional descriptive evaluation techniques.

Hypotheses

In order to accomplish the overall purpose of the study, the following hypotheses were formulated:

1. Teachers participating in an individualized inservice approach for teaching disadvantaged learners will have more positive attitudes toward inservice education than will teachers participating in the course, Vocational Education for Special Needs Learners.

2. Teachers participating in an individualized inservice approach for teaching disadvantaged learners will rate the inservice program as more effective than will teachers participating in the course, Vocational Education for Special Needs Learners.

3. Teachers participating in an individualized inservice approach for teaching disadvantaged learners will express different opinions regarding working with the teaching special needs students than will teachers participating in the course, Vocational Education for Special Needs Learners.

4. Teachers participating in an individualized inservice approach for teaching disadvantaged learners will show a greater increase in their skill for working with special needs learners than will teachers participating in the course, Vocational Education for Special Needs Learner.

Need for the Study

A study evaluating the effectiveness of an inservice program for vocational education teachers of disadvantaged learners is especially pertinent when consideration is given to our nation's concern for and commitment to disadvantaged youth. Legislatively this concern has been expressed through the Vocational Education Act of 1963 and its amendments in 1968 and 1976. The Personnel Training Section of the Vocational Education Act of 1976 (Public Law 94-482) requires that 30 percent of basic state grant funds be available to provide vocational educational personnel with training that is designed to improve the quality of instruction, guidance, and supervision to special needs populations. Part of the response to this mandate has been the implementation of inservice programs for vocational teachers. As Gaston, Consultant for Vocational Disadvantaged and Handicapped Programs, Pennsylvania Department of Education, indicated in her memo of February 24, 1982 to State Vocational Education Director Olson, "regular vocational teachers have seldom been prepared to teach disadvantaged and handicapped students." In Pennsylvania beginning teachers are not required to have completed courses to teacher special needs students. Since there is a large percentage (24.4) of disadvantaged students enrolled in Pennsylvania vocational programs (see Table 1), a need exists for competent teachers to teach disadvantaged students.

TABLE 1

PENNSYLVANIA'S ENROLLMENT OF SPECIAL POPULATION GROUPS IN VOCATIONAL EDUCATION, 1981-1982

Population Group	Enrollment*	%
Disadvantaged	46,246	19.7%
Handicapped	11,074	4.7%
Limited English Proficiency	1,077	.5%
Total	58,415	24.9%

*Total enrollment of students ("special needs" and "regular" enrolled in vocational education classes is 234,560.

Source: Vocational curriculum enrollment directory: Secondary level students school year 1981-82. (1983). Harrisburg, Pennsylvania: Pennsylvania Department of Education, Vocational Education Management Information System, p. 5.

Ehresman, Hanel, and Robertson (1976) identified various approaches for preparing vocational teachers of disadvantaged students. In most cases the training has been limited to some type of workshop or seminar designed to help teachers understand the disadvantaged student and suggest appropriate methods and materials to use. The basic assumption underlying such approaches is that knowledge alone will provide for more effective teaching. However, Ehresman, Hanel, and Robertson found there was very little, if any, evidence to support this assumption. Wood and Thompson (1980) further indicated that effective inservice programs in schools is a critical need; many of the past practices have been ineffective. Consequently, there exists a need to evaluate various inservice approaches. Evaluation of identified approaches gives support to the effectiveness of the method of inservice program rendered.

CHAPTER II

RESEARCH DESIGN AND PROCEDURES

A Nonequivalent Control Group Design was employed to study the effectiveness of the inservice program. The paradigm for the Nonequivalent Control Group Design (Borg & Gall, 1979) follows:

$$\begin{matrix} O_1 & X_1 & O_2 \\ O_3 & X_2 & O_4 \end{matrix}$$

Where:

O_1 O_3 = Pre-Needs Assessment (Completed by teachers in control and experimental group, resource team members and school administrator)

O_2 O_4 = Post-Needs Assessments (Completed by teachers in control and experimental group, resource team members and school administrator)

and

Vocational Teacher Questionnaire (Completed by teachers)

and

Q-sort (Completed by teachers)

X_1 = Individualized inservice training program conducted in local schools (teachers' classroom) for 10 sessions

X_2 = Inservice program conducted as a course meeting for 10 sessions

Population

The target population consisted of vocational teachers volunteering to participate in the individualized inservice education program or the inservice course designed to improve teachers' abilities to work with disadvantaged vocational education students. In order for teachers to be eligible to participate in the individualized inservice program, they had to meet the following criteria:

1. Teachers employed in an area vocational-technical school (AVTS) located within the service area designated for the Penn State Center for Vocational Teacher Education and were involved in the Pennsylvania Department of Education sponsored project, "An

Inservice Instructional Resource Team Approach for Teachers of Disadvantaged Learners." (See Appendix A for names of participating schools.)

2. Teachers had to be teaching classes in which vocational administrators indicated a high percentage (50 percent or more) of the students were classified as disadvantaged according to P. L. 94-482.

The only criterion for teachers to be considered for inclusion in the control group was their enrollment in the inservice class, Vocational Education for Special Needs Learners, taught during the Spring Semester, 1984 at Lebanon AVTS.

In addition to the teachers in the study, administrators in the teachers' local schools provided information regarding their perceptions of the teachers' abilities to work with disadvantaged vocational students. Administrators who had direct responsibility for providing instructional supervision to the teachers were included in the study. Additionally, the Penn State resource team members working on the project, "An Inservice Instructional Resource Team Approach for Teachers of Disadvantaged Learners" provided feedback on the teachers involved in the individualized inservice education approach. The number of participants in the two groups is represented in Table 2.

TABLE 2

DISTRIBUTION OF PARTICIPANTS IN THE STUDY

	Participant Title		
Treatment Group	Number of Teachers	Number of Administrators	Number of Resource Team Members
Experimental Group - Individualized Inservice Program	16	5	5
Control Group - Graduate Level Course	10	2*	1**

*One administrator has supervisory responsibilities for nine teachers in one AVTS and the other administrator had responsibility for one teacher from a different AVTS.

**Dr. J. Wircenski was the instructor for the class and completed the assessment instrument for all class participants.

Content of Treatment Levels

Previous communications with vocational teachers throughout the central region of Pennsylvania revealed there was a lack of teacher understanding regarding the needs and abilities of special needs students. As an alternative approach for assisting vocational teachers working with disadvantaged students in Pennsylvania, Dr. Jerry L. Wircenski, Associate Professor of Vocational Education at The Pennsylvania State University, developed the project, "An Inservice Resource Team Approach for Teachers of Disadvantaged Learners." The project was designed to provide on-site inservice training for vocational education teachers of disadvantaged learners. Resource team members worked individually with teachers in the following areas:

1. Identification of disadvantaged students and a description of individual support services needed;

2. Development of lesson plans and instructional units geared to the needs of disadvantaged students;

3. Diagnosis of reading materials and individual student reading competencies.

Specific statements relating to these three areas are found on the "Post-Assessment of Teachers in Inservice Training Programs" (see Appendix B).

The treatment (X_1) given to vocational education teachers in the experimental group was individualized on-site inservice training by resource team members. Team members worked with teachers for 10 sessions on tasks to which the teachers had responded either "not confident" or "little knowledge" on the Pre-Assessment instrument. After receiving the treatment, teachers responded to the Post-Assessment instrument to measure their knowledge and skill.

The treatment (X_2) given to vocational teachers in the control group was a course, Vocational Education for Special Needs Learners. The course addressed topics similar to tasks outlined on the Pre-Assessment instrument (see Appendix C for course syllabus). After receiving the treatment, teachers responded to the Post-Assessment to measure the knowledge and skill.

Instrumentation

The data for this investigation were secured through the use of four instruments: (1) a Pre-Assessment (Part I and II), (2) a Post-Assessment (Part I, II, and III), (3) a Q-sort instrument, and (4) a vocational teacher questionnaire.

The Pre-Assessment Instrument

This instrument consisted of two parts. In Part I, respondents were asked to respond to 10 statements indicating their perceived level of competence in performing tasks related to working with disadvantaged students (see Appendix B). In Part II, respondents were asked to respond to five statements describing their attitude toward inservice education. Parts I and II were administered to vocational teachers in the experiemental and control group. Area vocational school administrators and resource team members completed Part I to obtain their perceptions of the teachers' competency for working with disadvantaged students.

The Post-Assessment Instrument

This instrument consisted of three parts. Parts I and II were a duplicate of the Pre-Assessment Instrument. In Part III, teachers responded to seven statements designed to evaluate the specific inservice program in which they participated (see Appendix B). Part I, II, and III were administered to vocational teachers in both groups, while area vocational school administrators and resource team members completed only Part I.

Validity and Reliability

The Pre- and Post-Assessment Instruments (Part I), were a modified version of Farmer's (1980) Pre- and Post-Institute Assessment questionnaire. Specifically,

there was one modification made on this questionnaire. The Pre- and Post-Assessment Instruments were reduced to 10 task statements. This modification was made to make the responses program-relevant.

Farmer (1980) reported that the questionnaire (Part I) was evaluated for content validity by a "panel of experts" in the Research Division of Vocational Education of the North Carolina State Department of Public Instruction. After corrections were made, the questionnaire was field tested at the North Carolina A&T State University by the faculty in the Division of Industrial Education and Technology. Part II consisted of statements formulated by Lawrence (1974). As a result of a comprehensive review of research of inservice education, he found patterns of effective practices for inservice training from an analysis of 97 studies. These statements were used in this study to design an instrument to describe participants attitudes toward inservice education.

The Vocational Teacher's Questionnaire

This instrument generated demographic data on vocational teachers (see Appendix B and provided information regarding the teacher's professional teaching experiences and education background).

The Q-sort Items

This instrument required vocational teachers to respond to 25 items concerning the effectiveness of the staff development program. The items were written to obtain information related to the following areas: (1) estimate the change in the teachers and their students; (2) change in knowledge, attitude, and skills for working with disadvantaged students; and (3) evaluate the effectiveness of particular means and methods used by the program to achieve its outcome (see Appendix B). Specific directions for completing the Q-sort items were explained by the investigator before the instrument was administered.

The Q-sort items and Part III of the Posttest Needs Assessment Instrument were a modified version of an instrument used by the California Project under the auspices of the National Defense Education Act (NDEA), National Institute for Advanced Study in

Teaching Disadvantaged Youth (Stone, 1969). The instrument was designed to ascertain if particular project curricula and teaching procedures produced certain changes in participants and students. It provided a means of making a determination if there was consistency between estimates of change and evaluations of features of the project. The standard statistical technique for accomplishing this end -- a factoring of the correlation matrix for a full set of variables -- was performed.

Stone (1969) reported that data from the Q-sort were subjected, first to Tyron's "cluster analysis," and then, independently, to a principle axes factoring with varimax rotation. The factors resulting from the two methods were virtually identical, with items in the clusters having slightly higher loading coefficients than did the factor items.

For the purpose of this study, questions from five of the nine clusters were used. The validity and reliability coefficients for each cluster are shown in Table 3.

TABLE 3

VALIDITY AND RELIABILITY COEFFICIENTS FOR EACH CLUSTER

Cluster		Validity	Reliability
1	(Change in Students)	.94	.89
2	(Relationship with Disadvantaged Students)	.85	.72
3	(Value of the Inservice Program Curriculum)	.91	.83
4	(Change in Participants)	.89	.79

Method of Data Analysis

Data were analyzed in this investigation via: (1) Chi-square, and related correlations and (2) calculation of frequencies, percentages, and means. The appropriate method was dependent upon the hypothesis being addressed.

Descriptive statistics were used to summarize the responses for each statement on the questionnaires and the change in scores on the pretest and posttest.

The purpose of analyzing data via Chi-square was to see if there was a statistically reliable difference between observed frequency counts and expected frequency counts based on chance or some other a priori hypothesis (Roberts, 1975).

CHAPTER III

FINDINGS

This section reports the findings related to each of the hypotheses presented in Chapter I. The author presents and discusses statistical information in this chapter only to the extent necessary for interpreting the data. Conclusions concerning the data appear in Chapter IV.

Results Related to Hypotheses

Hypothesis I

Teachers participating in the individualized inservice approach for teaching disadvantaged learners will have more positive attitudes toward inservice education than will teachers participating in the course, Vocational Education for Special Needs Learners.

Findings

The difference between the groups overall attitudes toward inservice education were not statistically related at the .05 alpha level (see Table 4). This resulted in rejection of research Hypothesis 1 and retention of the null hypotheses. There was no significant degree of association between their response to the inservice attitude statements and whether they were in the experimental treatment group or the control group.

The frequencies and percentages for each statement relating to inservice education are presented in Table 5. When each statement was examined individually, the teachers in the experimental group either "strongly disagreed" or "disagreed" with four statements, whereas, none of the teachers in the control group responded in the same manner. Four teachers (25 percent) in the experimental group did not perceive that individualized

TABLE 4

TEACHERS' OVERALL ATTITUDES TOWARD INSERVICE EDUCATION
AT THE CONCLUSION OF THE INSERVICE PROGRAM

Treatment Group		Response Rating Scale							
		Strongly Disagree and Disagree		Undecided		Agree		Strongly Agree	
	n	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Control	10	4	(8.0)	11	(23.9)	25	(50.0)	10	(20.0)
Experimental	16	12	(15.0)	19	(23.8)	35	(43.8)	14	(17.5)
Total	26	16		30		60		24	

Chi-square = 7.82; not significant at .05; df = 3. A nonsignificant Cramers' V correlation coefficient was computed.

TABLE 5

TEACHERS' ATTITUDES TOWARD INSERVICE EDUCATION AT THE CONCLUSION OF THE INSERVICE PROGRAM BY INDIVIDUAL ATTITUDE STATEMENTS

Statements	Treatment Group[a]	Response Rating Scale									
		Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
1. Inservice education programs that have differentiated training experiences for different teachers (that is, "individualized") are more likely to accomplish their objectives than are programs that have common activities for all participants.	C	0		0		7	(70.0)	2	(20.0)	1	(10.0)
	E	1	(6.3)	3	(18.8)	3	(18.8)	4	(25.0)	5	(31.3)
2. Inservice education programs that emphasize demonstrations, and supervised trails are more likely to accomplish their goals than are programs in which the teacher is expected to store up ideas and behavior prescriptions for a future time.	C	0		0		0		7	(70.0)	3	(30.0)
	E	0		0		4	(25.0)	9	(56.3)	3	(18.8)
3. Inservice programs tend to emphasize the development of specific teaching skills for teachers to use in their classroom.	C	0		3	(30.0)	1	(10.0)	5	(50.0)	1	(10.0)
	E	1	(6.3)	2	(12.5)	5	(31.3)	2	(12.5)	1	(6.3)

[a]Ten teachers participated in the control group (C) and 16 teachers participated in the experimental group (E).

TABLE 5 continued

Statements	Treatment Group[a]	Response Rating Scale									
		Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
4. Teachers are more likely to benefit from inservice programs in which they can choose goals and activities for themselves, as contrasted with programs in which the goals and activities are preplanned.	C	0		1	(10.0)	2	(20.0)	5	(50.0)	2	(20.0)
	E	0		2	(12.5)	3	(18.8)	8	(50.0)	3	(18.8)
5. Teacher attitudes towards students are more likely to be influenced through on-site inservice training as opposed to university courses for credit.	C	0		0		1	(10.0)	6	(60.0)	3	(30.0)
	E	2	(12.5)	1	(6.3)	4	(25.0)	7	(43.8)	2	(12.5)

[a]Ten teachers participated in the control group (C) and 16 teachers participated in the experimental group (E).

training oriented inservice programs were any more effective in accomplishing program objectives than were the inservice program focusing on common group activities. Three teachers (18.8 percent) in the experimental group did not believe inservice programs emphasized the development of specific teaching skills for teachers to use in the classroom. Three teachers (18.8 percent) in the experimental group did not agree with the statement, "teacher attitudes towards students are more likely to be influenced through on-site inservice training as opposed to university courses for credit."

Hypothesis II

Teachers participating in the individualized inservice approach for teaching disadvantaged learners will rate the inservice program as more effective than will teachers partcipating in the coursse, Vocational Education for Special Needs Learners.

Findings

The relationship between the groups rating of the service program was statistically significant at the .05 alpha level (see Table 6). There was a significant degree of association between teachers responses regarding the value of the inservice program and the inservice program in which they participated. Teachers who participated in the formal course (control group) had more favorable perceptions regarding the value of the program than did teachers participating in the individualized inservice program (experimental group).

There were three specific statements in which a relatively larger percentage of teachers in the control group "agreed" or "strongly agreed" with the respective statements when compared to teachers in the experimental group (Table 7). Specifically:

1. Forty percent of the teachers enrolled in the formal course (control group), as compared to only 12.5 percent in the individualized program (experimental group), indicated too much emphasis was given to dispensing information and too little time spent in getting participants to explore their feelings about teaching disadvantaged students (statement 2, Table 7).

TABLE 6

TEACHERS' OVERALL PERCEPTIONS REGARDING THE VALUE OF THE INSERVICE PROGRAM

Treatment Group	n	Response Rating Scale									
		Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Control	10	1	(1.4)	22	(31.4)	7	(10.0)	34	(48.6)	6	(8.6)
Experimental	16	14	(12.5)	46	(41.1)	11	(9.8)	33	(29.5)	8	(7.1)
Total	26	15		68		18		67		14	

Chi-square = 12.17; significant at .05; df = 4. A significant Cramers' V correlation coefficient was computed.

2. One hundred percent of the teachers in the formal course, as compared to approximately 56 percent of the teachers in the individualized program, agreed or strongly agreed that they were able to develop specific teaching materials (statement 5, Table 7).

3. Ninety percent of the teachers in the formal course as compared to 50 percent in the individualized program, agreed or strongly agreed they developed new teaching strategies for teaching special needs students (statement 6, Table 7).

The frequencies and percentages for each statement relating to the value of the inservice program are shown in Table 7.

Hypothesis III

Teachers participating in the individualized inservice approach for teaching disadvantaged learners will express different opinions regarding working with and teaching special needs students than will teachers participating in the course, Vocational Education for Special Needs Learners.

Findings

Teachers sorted the 25 Q-sort statements into one of five categories: strongly agree, agree, undecided, disagree, or strongly disagree. The 25 statements specifically related to one of four general categories: changes in students; teachers relationships with disadvantaged students; change in participants; and value of the program (Table 8).

In analyzing the data related to the Q-sort, there were consistently one or two participants in the experimental group (Individualized Inservice Program for Teachers of Disadvantaged Learners) who reacted negatively to the statements. This may be a result of the local school administrators "requiring" the teachers to participate in the program. The data for the Q-sort were analyzed by examining frequencies and percentages. The investigator established that a 30 percent difference in perceived differences between the control and experimental group for a respective statement would be considered as manifesting a significant practical difference. A factor analysis approach was not utilized because of insufficient numbers.

TABLE 7

TEACHERS' PERCEPTIONS REGARDING THE VALUE OF
THE INSERVICE PROGRAM BY INDIVIDUAL STATEMENTS

Statements	Treatment Groups	Response Rating Scale									
		Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
1. A better learning experience would have resulted if I had had a bigger part in the planning.	C	0		4	(40.0)	2	(20.0)	4	(40.0)	0	
	E	0		9	(56.3)	2	(12.5)	2	(12.5)	3	(18.8)
2. The trainer put too much emphasis on dispensing information and not enough on getting me to explore my feelings about teaching disadvantaged students.	C	0		5	(50.0)	1	(10.0)	4	(40.0)	0	
	E	4	(25.0)	9	(56.3)	1	(6.3)	0		2	(12.5)
3. Some of the topics were too broad and difficult to relate information to my needs.	C	0		7	(70.0)	2	(10.0)	1	(10.0)	1	(10.0)
	E	0		9	(56.3)	3	(18.8)	4	(25.0)	0	
4. I learned more from the other people involved in the program than I did from the trainer.	C	1	(10.0)	6	(60.0)	2	(20.0)	1	(10.0)	0	
	E	2	(12.5)	11	(68.8)	1	(6.3)	1		1	
5. I was able to develop specific materials to use with disadvantaged students.	C	0		0		0		8	(80.0)	2	(20.0)
	E	2	(12.5)	2	(12.5)	3	(18.8)	9	(56.3)	0	

TABLE 7 continued

Statements	Treatment Groups	Response Rating Scale									
		Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
6. I was able to develop new teaching strategies for teaching special needs students.	C	0		0		1	(10.0)	8	(80.0)	1	(10.0)
	E	3	(18.8)	4	(25.0)	1	(6.3)	7	(43.8)	1	(6.3)
7. As a result of participating in the training program, I am now able to better understand the needs of disadvantaged students.	C	0		0		0		8	(80.0)	2	(20.0)
	E	2	(12.5)	3	(18.8)	0		10	(62.5)	1	(6.3)

TABLE 8

SUMMARY OF Q-SORT STATEMENTS, FREQUENCIES, AND PERCENTAGES BY CONTROL AND EXPERIMENTAL GROUPS

Q-sort Statements by Cluster[a]	Treatment Group C = Control E = Experimental	Response Rating Scale: Strongly Agree n	%	Agree n	%	Undecided n	%	Disagree n	%	Strongly Disagree n	%	Unable to respond - was not involved in this part of the study n	%
Cluster 1 (Change in Students)													
10. My disadvantaged students are as disinterested in school as they were 10 weeks ago.	C	0		0		6	(60.0)	2	(20.0)	1	(10.0)	1	(10.0)
	E	1	(6.3)	4	(25.0)	5	(31.3)	0		5	(31.3)	1	(6.3)
11. My disadvantaged students still have a lack of self-confidence.	C	0		2	(20.0)	1	(10.0)	2	(20.0)	2	(20.0)	3	(30.0)
	E	4	(31.3)	2	(25.0)	5	(12.5)	0	(31.3)	0		0	
12. My disadvantaged students are reading better than they were 10 weeks ago.	C	0		0		3	(30.0)	1	(10.0)	0		6	(60.0)
	E	0		3	(18.8)	3	(18.8)	4	(25.0)	4	(25.0)	2	(12.5)
Cluster 2 (Relationship with Disadvantages Students)													
3. I am convinced that disadvantaged students have more learning ability than I had given them credit for.	C	0		3	(30.0)	1	(10.0)	3	(30.0)	2	(20.0)	1	(10.0)
	E	3	(18.8)	0		6	(37.5)	2	(12.5)	3	(18.8)	2	(12.5)

[a]The numbers indicate the statement number on the Q-sort questionnaire.

TABLE 8 continued

Q-sort Statements by Cluster[a]	Treatment Group C = Control E = Experimental	Response Rating Scale: Strongly Agree n	%	Agree n	%	Undecided n	%	Disagree n	%	Strongly Disagree n	%	Unable to respond - was not involved in this part of the study n	%
4. I am convinced that disadvantaged students are actually superior to other students in certain ways.	C	4	(40.0)	1	(10.0)	1	(10.0)	2	(20.0)	2	(20.0)	0	
	E	6	(37.5)	3	(18.7)	3	(18.8)	0		4	(25.0)	0	
6. I have been more supportive of disadvantaged students during the last 10 weeks.	C	4	(40.0)	2	(20.0)	1	(10.0)	2	(20.0)	1	(10.0)	0	
	E	5	(31.3)	3	(18.8)	3	(18.8)	2	(12.5)	3	(18.8)	0	
Cluster 3 (Value of the Inservice Program)													
13. I received valuable advice from the trainer who worked with me concerning teaching disadvantaged students.	C	4	(40.0)	3	(30.0)	1	(10.0)	0		0		2	(20.0)
	E	8	(50.0)	3	(18.8)	2	(12.5)	1	(6.3)	1	(6.3)	1	(6.3)

[a]The numbers indicate the statement number on the Q-sort questionnaire.

TABLE 8 continued

Q-sort Statements by Cluster[a]	Treatment Group C = Control E = Experimental	Response Rating Scale											
		Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree		Unable to respond - was not involved in this part of the study	
		n	%	n	%	n	%	n	%	n	%	n	%
14. The films, tapes, and resource materials were valuable to me.	C	5	(50.0)	4	(40.0)	1	(10.0)	0		0		0	
	E	3	(18.8)	5	(31.3)	3	(18.8)	2	(12.5)	1	(6.3)	2	(12.5)
15. The reading that I did as part of the training was of little value to me.	C	0		0		0		9	(90.0)	1	(10.0)	0	
	E	0		1	(6.3)	2	(12.5)	8	(50.0)	3	(18.8)	2	(12.5)
16. The material on the learning problems of disadvantaged students was of little value.	C	0		2	(20.0)	1	(10.0)	3	(30.0)	4	(40.0)	0	
	E	1	(6.3)	0		2	(12.5)	4	(25.0)	7	(43.8)	2	(12.5)
17. The material on doing a readability study was of little value.	C	0		1	(10.0)	4	(40.0)	4	(40.0)	1	(10.0)	0	
	E	1	(6.3)	1	(6.3)	1	(6.3)	4	(25.0)	7	(43.8)	2	(12.5)
18. Being introduced to special instructional materials for disadvantaged students was valuable.	C	6	(60.0)	4	(40.0)	0		0		0		0	
	E	7	(43.8)	5	(31.3)	2	(12.5)	2	(12.5)	2	(12.5)	0	

[a]The numbers indicate the statement number on the Q-sort questionnaire.

TABLE 8 continued

Q-sort Statements by Cluster[a]	Treatment Group C = Control E = Experimental	Response Rating Scale											
		Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree		Unable to respond - was not involved in this part of the study	
		n	%	n	%	n	%	n	%	n	%	n	%
19. The lectures presented during the training were valuable to me.	C	0		8	(80.0)	1	(10.0)	1	(10.0)	0		0	
	E	5	(31.3)	5	(31.3)	1	(6.3)	1	(6.3)	0		4	(25.0)
21. The material on curricula appropriate for disadvantaged students was of little value.	C	0		0		3	(30.0)	3	(30.0)	3	(30.0)	1	(10.0)
	E	2	(12.5)	0		2	(12.5)	6	(32.5)	5	(31.3)	1	(6.3)
22. The material on teaching methods appropriate for disadvantaged students was valuable.	C	5	(50.0)	5	(50.0)	0		0		0		0	
	E	6	(37.5)	3	(18.8)	3	(18.8)	1	(6.3)	1	(6.3)	2	(12.5)
23. The materials on how to teach specific units in the subject area were of little value.	C	0		2	(20.0)	2	(20.0)	3	(30.0)	2	(20.0)	1	(10.0)
	E	0		2	(12.5)	3	(18.8)	6	(32.5)	3	(18.8)	2	(12.5)
24. The material on identification and assessment of disadvantaged students was valuable.	C	7	(70.0)	3	(30.0)	0		0		0		0	
	E	6	(37.5)	6	(37.5)	1	(6.3)	1	(6.3)	1	(6.3)	1	(6.3)

[a]The numbers indicate the statement number on the Q-sort questionnaire.

TABLE 8 continued

Q-sort Statements by Cluster[a]	Treatment Group C = Control E = Experimental	Response Rating Scale: Strongly Agree n	%	Agree n	%	Undecided n	%	Disagree n	%	Strongly Disagree n	%	Unable to respond - was not involved in this part of the study n	%
25. The material on employability skills for disadvantaged was of little value.	C	0		1	(10.0)	2	(20.0)	3	(30.0)	1	(10.0)	3	(30.0)
	E	0		1	(6.3)	2	(12.5)	3	(18.8)	3	(18.8)	7	(43.8)
Cluster 4 (Change in Participants)													
1. My knowledge of identifying the types of disadvantagement (academically, economically, limited English speaking), has increased.	C	6	(60.0)	4	(40.0)	0		0		0		0	
	E	5	(31.3)	3	(18.8)	3	(18.8)	3	(18.8)	2	(12.5)	0	
2. I have learned very little about instructional materials and curricula for disadvantaged students.	C	0		0		0		4	(40.0)	6	(60.0)	0	
	E	2	(12.5)	2	(12.5)	3	(18.8)	5	(31.3)	4	(25.0)	0	
5. I am no more self-confident in working with disadvantaged students than I was 10 weeks ago.	C	0		0		0		2	(20.0)	8	(80.0)	0	
	E	2	(12.5)	3	(18.8)	2	(12.5)	4	(25.0)	5	(31.3)	0	

[a]The numbers indicate the statement number on the Q-sort questionnaire.

TABLE 8 continued

Q-sort Statements by Cluster[a]	Treatment Group C = Control E = Experimental	Response Rating Scale											
		Strongly Agree		Agree		Undecided		Disagree		Strongly Disagree		Unable to respond - was not involved in this part of the study	
		n	%	n	%	n	%	n	%	n	%	n	%
7. I have collected more information about the backgrounds of my disadvantaged students.	C	1	(10.0)	4	(40.0)	0		4	(40.0)	1	(10.0)	0	
	E	3	(18.8)	3	(18.8)	1	(6.3)	4	(25.0)	4	(25.0)	1	(6.3)
8. The inservice training has led me to give disadvantaged students more individualized instruction and attention.	C	5	(50.0)	1	(10.0)	0		1	(10.0)	1	(10.0)	2	(20.0)
	E	2	(12.5)	6	(37.5)	3	(18.8)	3	(18.8)	2	(12.5)	0	
9. I teach disadvantaged students about the same way I did 10 weeks ago.	C	2	(20.0)	1	(10.0)	3	(30.0)	3	(30.0)	1	(10.0)	0	
	E	5	(31.3)	6	(37.5)	0		2	(12.5)	3	(18.8)	0	
20. I like disadvantaged students no better than I did 10 weeks ago.	C	1	(10.0)	1	(10.0)	0		1	(10.0)	5	(50.0)	2	(20.0)
	E	2	(12.5)	2	(12.5)	4	(25.0)	1	(6.5)	6	(32.5)	1	(6.3)

[a]The numbers indicate the statement number on the Q-sort questionnaire.

Change in Students

Three statements (statements 10, 11, and 12) related to perceived changes in students (Table 9). Approximately one third of the teachers in the experimental and one third in the control group indicated students were more interested in school and more self-confident. Nineteen percent of the teachers in the experimental group indicated their students were "reading better" as compared to none of the teachers in the control group reporting such a student change. In essence, no practical differences existed between the experimental and control teachers' perceptions regarding changes in students.

Teachers' Relationships with Disadvantaged Students

Three statements (statements 3, 4 and 6) related to the teachers' relationship with disadvantaged students (Table 10). Approximately one third of the teachers in the control group indicated they were "convinced disadvantaged students had more ability than they had given them credit for "as compared to one fifth of the teachers in the experimental group. Over 50 percent of the teachers in both groups indicated they were "convinced in certain ways" and "more supportive of disadvantaged students" as a result of the inservice program. In sum, no practical differences existed between the two groups regarding their relationships with disadvantaged students.

Change in Participants

Seven statements (statements 1, 2, 5, 6, 8, 9, and 20) related to change in participants (Table 11). Overall, the statements pertained to teachers change in attitude and instructional techniques.

Generally, teachers rated the responses quite similarly with the exception of three statements. One hundred percent of the teachers in the control group indicated: (a) a better knowledge of the types of disadvantagement; (b) ability to develop instructional materials; and (c) more self-confident in teaching disadvantaged students. This was a signficiantly higher percentage when compared to the teachers in the experimental group. No other practical differences existed between the teachers change in attitudes and teaching techniques.

TABLE 9

RELATIVE PERCENTAGE OF TEACHERS REPORTING A CHANGE IN STUDENT BEHAVIORS/ATTITUDES*

Synopsis of Q-sort Statement	(Statement No.)	Control Group		Experimental Group		Percent Difference**
		n	%	n	%	
As Interested in School	(10)	3	(30.0)	5	(31.3)	1.5
As Self-confident	(11)	4	(40.0)	5	(31.3)	8.7
Reading Better	(12)	0	0	3	(18.8)	18.8

*Based on collapsing data appearing in Table 10.

**Percent difference = % of the control group; % of the experimental group.

TABLE 10

RELATIVE PERCENTAGE OF TEACHERS REPORTING A CHANGE IN THEIR RELATIONSHIP WITH DISADVANTAGED STUDENTS*

Synopsis of Q-sort Statement	(Statement No.)	Control Group		Experimental Group		Percent Difference**
		n	%	n	%	
Convinced disadvantaged students have more learning ability	(3)	3	(30.0)	3	(19.0)	11.0
Convinced disadvantaged students are superior	(4)	5	(50.0)	9	(56.0)	6.0
More supportive of disadvantaged students	(6)	6	(60.0)	8	(50.0)	10.0

*Based on collapsing data appearing in Table 10.

**Percent difference = % of the control group; % of the experimental group.

TABLE 11

RELATIVE PERCENTAGE OF TEACHERS REPORTING A CHANGE IN PARTICIPANTS' ATTITUDES AND INSTRUCTIONAL TECHNIQUES*

Synopsis of Q-sort Statement	(Statement No.)	Control Group		Experimental Group		Percent Difference**
		n	%	n	%	
Identify types of disadvantagement	(1)	10	(100.0)	8	(50.0)	50.0
Develop instructional materials	(2)	10	(100.0)	9	(31.5)	68.5
More self-confidence	(5)	10	(100.0)	9	(31.5)	68.5
Collected information on disadvantaged	(7)	5	(50.0)	6	(37.0)	13.0
More individualized instruction	(8)	6	(60.0)	8	(25.0)	25.0
Teach the same way	(9)	4	(40.0)	5	(31.0)	9.0
Like disadvantaged students more	(20)	6	(60.0)	7	(39.0)	21.0

*Based on collapsing data appearing in Table 10.

**Percent difference = % of the control group; % of the experimental group.

Value of Inservice Program

Seven statements (statements, 13, 14, 15, 16, 17, 18, and 19) related to the value of the respective inservice programs (Table 12). Examination of the findings revealed similar perceptions between the teachers in the control and experimental groups regarding the value of the inservice program. However, 90 percent of the teachers in the control group indicated the audio-visual materials were of the most value, as compared to approximately 50 percent of the teachers in the experimental group. Also, 100 percent of the teachers in the control group as compared to 68.8 percent in the experimental group indicated the readings were valuable. In sum, no other practical differences existed between the experimental and control group.

Hypothesis IV

Teachers participating in the individualized inservice approach for teaching disadvantaged learners will show a greater increase in their perceived skills for working with special needs learners than will teachers participating in the course, Vocational Education for Special Needs Learners.

Findings

The administrators' data related to Hypothesis IV must be interpreted with some degree of caution. Specifically, the data relating to administrator perceptions consists of perceptions from four administrators of teachers in the experimental group and only one administrator of teachers in the control group. The perceptions for resource team members represent a compilation of results for five individuals working with teachers in the experimental group and one resource team member working with teachers in the control group (see Table 13).

Teachers' Perceptions

The greatest increase in skills, as perceived by teachers in both the experimental and control group, related to their ability in developing instructional materials for

TABLE 12

RELATIVE PERCENTAGE OF TEACHERS REPORTING THE VALUE OF THE INSERVICE PROGRAM

Synopsis of Q-sort Statement	(Statement No.)	Control Group n	Control Group %	Experimental Group n	Experimental Group %	Percent Difference**
Advice from resource member	(13)	7	(70.0)	11	(68.8)	1.3
Valuable resource materials	(14)	9	(90.0)	8	(50.0)	40.0
Significant readings	(15)	10	(100.0)	11	(68.8)	31.3
Material on learning problems	(16)	7	(70.0)	11	(68.8)	1.3
Material on readability	(17)	5	(50.0)	11	(68.8)	18.8
Special instructional materials	(18)	10	(100.0)	12	(75.0)	25.0
Valuable lectures	(19)	8	(80.0)	10	(62.5)	17.5

*Based on collapsing data appearing in Table 10.

**Percent difference = % of the control group; % of the experimental group.

TABLE 13

SUMMARY OF GAIN SCORES FOR EXPERIMENTAL AND CONTROL GROUPS BY ADMINISTRATORS, TEACHERS, AND RESOURCE TEAM MEMBERS

Task Statements	Respondent	Control[a]				Experimental[b]			
		Pretest $\bar{X}$	Posttest $\bar{X}$	Overall[c] Gain	Rank	Pretest $\bar{X}$	Posttest $\bar{X}$	Overall[c] Gain	Rank
1. Establish a positive attitude toward disadvantaged students.	Teacher	4.0	4.2	.2	9	4.1	4.2	.1	5
	Administrator	3.3	3.3	0	2	2.7	3.3	.6	5
	Resource Team	3.6	4.7	1.1	6	3.8	4.0	.2	7
2. Identify the specific nature of the student's learning difficulty.	Teacher	3.0	3.8	.8	4	3.3	3.3	.0	7
	Administrator	2.5	1.8	-.7	4	2.1	2.2	.1	6
	Resource Team	2.7	4.6	1.3	5	2.9	3.2	.3	6
3. Determine types of materials, methods, and learning situation which are most appropriate for disadvantaged students.	Teacher	2.7	3.9	1.2	2	3.3	3.6	.3	4
	Administrator	3.1	2.1	1.0	1	2.3	3.0	.7	4
	Resource Team	2.8	4.6	1.8	2	3.1	3.8	.7	3
4. Develop instructional materials for disadvantaged students.	Teacher	2.6	4.0	1.4	1	2.9	3.6	.7	1
	Administrator	2.8	1.9	-.9	6	2.3	3.0	.7	4
	Resource Team	3.1	4.5	1.4	4	2.9	3.9	1.6	1

[a]Responses for the control group were obtained from nine teachers, one administrator, and one resource team member.

[b]Responses for the experimental group were obtained from 16 teachers, four administrators, and five resource team members.

[c]A gain score of 1.0 or greater represents a significant increase in knowledge gained.

TABLE 13 continued

Task Statements	Respondent	Control[a]				Experimental[b]			
		Pretest $\bar{X}$	Posttest $\bar{X}$	Overall[c] Gain	Rank	Pretest $\bar{X}$	Posttest $\bar{X}$	Overall[c] Gain	Rank
5. Familiar with the legal definition and identification of disadvantaged students.	Teacher	3.2	4.0	.8	4	3.3	3.2	-.1	8
	Administrator	2.2	1.4	-.8	5	1.9	2.8	.9	3
	Resource Team	1.7	4.7	3.0	1	2.9	2.4	.5	5
6. Assist disadvantaged students in determining the career objectives which are most consistent with their interests and abilities.	Teacher	3.3	3.9	.6	6	3.8	3.7	-.1	8
	Administrator	3.2	2.1	-1.1	7	2.3	3.7	.1	6
	Resource Team	2.7	4.5	1.8	2	3.0	3.7	.7	3

[a]Responses for the control group were obtained from nine teachers, one administrator, and one resource team member.

[b]Responses for the experimental group were obtained from 16 teachers, four administrators, and five resource members.

[c]A gain score of 1.0 or greater represents a significant increase in knowledge gained.

TABLE 13 continued

Task Statements	Respondents	Control[a]				Experimental[b]			
		Pretest $\bar{X}$	Posttest $\bar{X}$	Overall[c] Gain	Rank	Pretest $\bar{X}$	Posttest $\bar{X}$	Overall[c] Gain	Rank
7. Modify instructional materials and techniques for disadvantaged students to facilitate learning.	Teacher	3.0	4.1	1.1	3	3.4	3.8	.4	2
	Administrator	2.8	2.3	-.5	3	2.3	3.5	1.2	1
	Resource Team	2.7	4.5	1.8	2	2.8	3.9	1.1	2
8. Familiar with motivational and reinforcement techniques pertaining to disadvantaged students.	Teacher	2.6	3.4	.8	4	3.4	3.8	.4	2
	Administrator	2.9	2.0	-.9	6	2.3	3.0	.7	4
	Resource Team	3.1	4.4	1.3	5	3.0	3.6	.6	4

[a] Responses for the control group were obtained from nine teachers, one administrator, and one resource team member.

[b] Responses for the experimental group were obtained from 16 teachers, four administrators, and five resource members.

[c] A gain score of 1.0 or greater represents a significant increase in knowledge gained.

TABLE 13 continued

Task Statements	Respondent	Control[a] Pretest $\bar{X}$	Control[a] Posttest $\bar{X}$	Control[a] Overall[c] Gain	Control[a] Rank	Experimental[b] Pretest $\bar{X}$	Experimental[b] Posttest $\bar{X}$	Experimental[b] Overall[c] Gain	Experimental[b] Rank
9. Analyze disadvantaged students' occupational interests and aptitudes.	Teacher	2.3	2.9	.6	6	3.4	3.4	.0	5
	Administrator	3.2	2.0	-1.2	8	2.3	3.0	.7	4
	Resource Team	2.5	4.0	1.5	3	3.1	3.3	.2	7
10. Help disadvantaged students develop positive attitudes about themselves and the world of work.	Teacher	3.5	4.1	.6	6	4.3	4.1	.2	10
	Administrator	3.3	2.5	-.8	5	2.8	3.8	1.0	2
	Resource Team	2.8	4.6	1.8	2	3.6	4.1	.5	5

[a] Responses for the control group were obtained from nine teachers, one administrator, and one resource team member.

[b] Responses for the experimental group were obtained from 16 teachers, four administrators, and five resource team members.

[c] A gain score of 1.0 or greater represents a significant increase in knowledge gained.

disadvantaged students. The teachers in the experimental group (x = 2.9) and in the control group (x = 2.6) initially were undecided regarding their ability to develop instructional materials for disadvantaged students. At the conclusion of their respective inservice program, teachers in both inservice programs were confident of their ability (experimental x = 3.6; control x = 4.0) to develop materials for disadvantaged students (see Table 13, statement 4).

When determining whether significant changes occurred between the teachers' pre- and post-assessment, the criterion of a minimum one unit (1.0 on a scale of 5.0) change was established for indicated significant practical change in teachers' perceptions. Using that criterion, there was no task for which teachers in the experimental group reported a significant increase in their abilities. Using the same criterion, teachers in the control group reported significant increases in their ability to: (a) determine types of materials, methods, and learning situations which are most appropriate for disadvantaged students; and (c) modify instructional materials and techniques for disadvantaged students to facilitate learning.

Resource Team Members' Perceptions

The validity of the data pertaining to resource members' perceptions of the teachers' abilities to work with disadvantaged students is questionable. For the experimental group, five persons reported their perceptions of the 16 teachers. For the control group, only one resource member reported perceptions for the 10 teachers. With the control group, there was no procedure for establishing inter-rater reliability. Thus, the data must be examined with great caution and are thus not discussed in detail in this study. The rater did in fact report significant teacher improvement in all 10 areas.

The resource members in the experimental group perceived the teachers as having significantly improved in the following two areas: (a) develop instructional materials for disadvantaged students; and (b) modify instructional materials and techniques for disadvantaged students to facilitate change (Table 13).

Administrators' Perceptions

The validity of the data pertaining to administrators' perceptions of teachers in the control group to work with disadvantaged students in also questionable. The administrator in the control group indicated that he was reluctant to complete the post-assessment instrument. He stressed that he saw no value in giving his perceptions at this time (the day of the last class session) and would have preferred reporting feedback in several months. Thus, the validity, as indicated earlier, is questionable. Four persons (one administrator declined to participate in the study) reported their perceptions of 16 teachers in the experimental group. For the control group only one administrator reported perceptions for nine teachers. There was no procedure for establishing inter-rater reliability with the control group. Thus, the data must be examined with great caution. The administrator's rating of teachers in the control group indicated a signficant decline in the teachers' abilities to work with disadvantaged students in the majority (eight of 10) of the tasks (Table 13).* From the remaining tasks, the administrator indicated teachers had made significant gains in: (a) determining types of materials, methods, and learning situations which are most appropriate for disadvantaged students.

The administrators of teachers in the experimental group perceived the teachers as having significantly improved in the following three areas: (a) assist disadvantaged students in determining the career objectives which are most consistent with their interests and abilities; (b) modify instructional materials and techniques for disadvantaged students to facilitate learning; and (c) help disadvantaged students develop positive attitudes about themselves and the world of work.

*Based on a criterion of a minimum one unit (1.0 in a 5.0 scale) change for significant change to occur.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of Findings

Data collected through the Q-sort techniques revealed, in general, teachers participating in the individualized inservice program and the formal course approved of both approaches. Teachers indicated they understood their students' subcultures better and had become more knowledgeable of the appropriate instructional materials and curricula for working with the disadvantaged. Teachers also indicated, though not as firmly, that their disadvantaged students had benefited from the inservice program -- having somewhat more confidence in themselves and less inefficient in their learning.

The strongest approval by the participants was given to the instructional procedures and curriculum of the inservice education program, which were more strongly supported than were the estimates of changes in disadvantaged students or the participants themselves.

Analysis of scores on the posttest revealed teachers in the control and experimental groups indicated an increase in their competency to work with the disadvantaged. However, the greatest gain was recognized by the teachers participating in the formal course (control group).

All things taken into account, the statistical results should be regarded as suggestive rather than definitive. The confidence with which one accepts the "suggested" statistical results and the apparent ambiguities should be held in abeyance, pending a follow-up study.

Conclusions

At first glance, the results of this investigation are not very dramatic. The findings are somewhat inconsistent among themselves and even not supportive of several of the hypotheses. For the most part, neither inservice approach emerged as an ideal model for preparing teachers to work with disadvantaged students. No magical or dramatic changes

occurred in the behavior of teachers or their students. No one set of features distinctly characterized them most effective and least effective inservice education approach.

The individualized inservice program described in this study can most properly be regarded as a different means in which traditional, conventional, experimental, and innovative methods and materials of teacher education may be combined and coordinated in order to provide coherent, continuous, and comprehensive programs for the inservice training of teachers of the disadvantaged. Investigation of both inservice approaches (individualized inservice and formal course) seemed to have been successful in that all participants indicated improvement in their abilities to work with disadvantaged students.

An overall conclusion of the findings indicated that teachers of the disadvantaged who participated in this study are seeking assistance. They seemed to welcome any inservice training activity that seems likely to help them in their struggle to cope with the problems of teaching disadvantaged students. In these circumstances, they did not seem to have very strong preferences for one type of activity over another; they liked them both for their purposes. The ratings indicated the inservice programs were conducted well enough to serve some, if not all, of the teachers' needs.

Recommendations

In view of the findings and conclusions of this study, the following recommendations were suggested:

For Practice

1. It is recommended that more vocational teachers, counselors, and administrators be involved in future inservice staff development programs concerning disadvantaged students.

2. It is recommended that inservice staff development programs be constructed in a format to provide teachers the opportunity for active participation and self directed learning. This practice may provide teachers with options to select information most critical to their needs.

3. It is recommended that inservice assessments be conducted to determine which inservice approach is likely to be most productive for a given participant(s).

4. It is recommended that all resource team members receive "common based" preparation. This practice should ensure that the teachers will be exposed to similar delivery approaches.

For Further Research

1. It is recommended that the study reported herein be replicated with larger samples in order to improve the validity of the findings in this study.

2. A longitudinal study should be conducted to determine if subjects' competencies in working with the disadvantaged are maintained over a longer period of time. Through this type of study it could be determine if the competencies are further changed through contact and interaction with disadvantaged individuals.

3. The Q-sort instrument should be refined through a series of field tests for use in similar research studies.

4. It is recommended that a time delayed follow-up interview with participants in inservice programs be conducted to assess the perceived value of the program.

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APPENDIX A

PARTICIPATING AREA VOCATIONAL-TECHNICAL SCHOOLS

Area Vocational-Technical Schools Participating in
"An inservice Instructional Resource Team Approach for
Teachers of Disadvantaged Learners Project"

Name of School	County
Altoona 1500 Fourth Avenue Altoona, PA	Blair
Centre County Pleasant Gap, PA	Centre
Harrisburg-Steelton-Highspire 2915 North Third Street Harrisburg, PA	Dauphin
Huntingdon County Box E Mill Creek, PA	Huntingdon
Williamsport Area Community College 1005 West Third Street Williamsport, PA	Lycoming

APPENDIX B

RESEARCH INSTRUMENTS

Last 4 Digits of Social Security Number _ _ _ _

Pre- and Post-Assessment of Teachers in Inservice Training Program

Listed below are tasks which might be performed in working with disadvantaged students. Please respond by circling one number for each task. Part I	Not Confident (1)	Little Knowledge (2)	Undecided (3)	Confident (4)	Extremely Confident (5)
1. Establish a positive attitude toward disadvantaged students.	1	2	3	4	5
2. Identify the specific nature of the student's learning difficulty.	1	2	3	4	5
3. Determine types of materials, methods, and learning situation which are most appropriate for disadvantaged studdents.	1	2	3	4	5
4. Develop instructional materials for disadvantaged students.	1	2	3	4	5
5. Familiar with the legal definition and identification of disadvantaged students.	1	2	3	4	5
6. Assist disadvantaged students in determining the career objectives which are most consistent with their interests and abilities.	1	2	3	4	5
7. Modify instructional materials and techniques for disadvantaged students to facilitate learning.	1	2	3	4	5
8. Familiar with motivational and reinforcement techniques pertaining to disadvantaged students.	1	2	3	4	5

Listed below are tasks which might be performed in working with disadvantaged students. Please respond by circling one number for each task.	Not Confident	Little Knowledge	Undecided	Confident	Extremely Confident
Part I	(1)	(2)	(3)	(4)	(5)
9. Analyze disadvantaged students occupational interests and aptitudes.	1	2	3	4	5
10. Help disadvantaged students develop positive attitudes about themselves and the world of work.	1	2	3	4	5

Last 4 Digits of Social Security Number _ _ _ _

Pre- and Post-Assessment of Teachers in Inservice Training Program

Listed below are opinion statements pertaining to inservice training programs. Please respond by circling one number for each statement. Part II	Response Rating Scale: Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
1. Inservice education programs that have differentiated training experiences for different teachers (that is, "individualized") are more likely to accomplish their objectives than are programs that have common activities for all participants.	1	2	3	4	5
2. Inservice education programs that emphasize demonstrations, and supervised trials are more likely to accomplish their goals than are programs in which the teacher is expected to store up ideas and behavior prescriptions for a future time.	1	2	3	4	5
3. Inservice programs tend to emphasize the development of specific teaching skills for teachers to use in their classroom.	1	2	3	4	5
4. Teachers are more likely to benefit from inservice programs in which they can choose goals and activities for themselves, as contrasted with programs in which the goals and activities are preplanned.	1	2	3	4	5
5. Teacher attitudes towards students are more likely to be influenced through on-site inservice training as opposed to university courses for credits.	1	2	3	4	5

Last 4 Digits of Social Security Number _ _ _ _

Self-Assessment of Inservice Training Program

Listed below are statements pertaining to the inservice program you participated in for 10 weeks. Please respond by circling one number for each statement.	Response Rating Scale				
Part III	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
1. A better learning experience would have resulted if I had had a bigger part in the planning.	1	2	3	4	5
2. The trainer put too much emphasis on dispensing information and not enough on getting me to explore my feelings about teaching disadvantaged students.	1	2	3	4	5
3. Some of the topics were too broad and difficult to relate information to my needs.	1	2	3	4	5
4. I learned more from the other people involved in the program than I did from the trainer.	1	2	3	4	5
5. I was able to develop specific materials to use with disadvantaged students.	1	2	3	4	5
6. I was able to develop new teaching strategies for teaching special needs students.	1	2	3	4	5
7. As a result of participating in the training program, I am now able to better understand the desperate needs of disadvantaged students.	1	2	3	4	5

Teacher's Name_____

Administrator Pre- and Post-Assessment of
Teachers in Inservice Training Program

Listed below are tasks which might be performed in working with disadvantaged students. Based on your perceptions of the teachers participating in the inservice training program, rate the teachers' competency on each of the tasks. Please respond by circling one number for each task.	Not Confident (1)	Little Knowledge (2)	Undecided (3)	Confident (4)	Extremely Confident (5)
1. Establish a positive attitude toward disadvantaged students.	1	2	3	4	5
2. Identify the specific nature of the student's learning difficulty.	1	2	3	4	5
3. Determine types of materials, methods and learning situation which are most appropriate for disadvantaged students.	1	2	3	4	5
4. Develop instructional materials for disadvantaged students.	1	2	3	4	5
5. Familiar with the legal definition and identification of disadvantaged students.	1	2	3	4	5
6. Assist disadvantaged students in determining the career objectives which are most consistent with their interests and abilities.	1	2	3	4	5
7. Modify instructional materials and techniques for disadvantaged students to facilitate learning.	1	2	3	4	5
8. Familiar with motivational and reinforcement techniques pertaining to disadvantaged students.	1	2	3	4	5

Listed below are tasks which might be performed in working with disadvantaged students. Based on your perceptions of the teachers participating in the inservice training program, rate the teachers' competency on each of the tasks. Please respond by circling one number for each task.	Not Confident (1)	Little Knowledge (2)	Undecided (3)	Confident (4)	Extremely Confident (5)
9. Analyze disadvantaged students occupational interests and aptitudes.	1	2	3	4	5
10. Help disadvantaged students develop positive attitudes about themselves and the world of work.	1	2	3	4	5

Teacher's Name_____

Resource Trainer Pre- and Post-Assessment of Teachers in Inservice Training Program

Listed below are tasks which might be performed in working with disadvantaged students. Based on your perceptions of the teachers participating in the inservice training program, rate the teachers' competency on each of the tasks. Please respond by circling one number for each task.	Not Confident (1)	Little Knowledge (2)	Undecided (3)	Confident (4)	Extremely Confident (5)
1. Establish a positive attitude toward disadvantaged students.	1	2	3	4	5
2. Identify the specific nature of the student's learning difficulty.	1	2	3	4	5
3. Determine types of materials, methods and learning situation which are most appropriate for disadvantaged students.	1	2	3	4	5
4. Develop instructional materials for disadvantaged students.	1	2	3	4	5
5. Familiar with the legal definition and identification of disadvantaged students.	1	2	3	4	5
6. Assist disadvantaged students in determining the career objectives which are most consistent with their interests and abilities.	1	2	3	4	5
7. Modify instructional materials and techniques for disadvantaged students to facilitate learning.	1	2	3	4	5
8. Familiar with motivational and reinforcement techniques pertaining to disadvantaged students.	1	2	3	4	5

Listed below are tasks which might be performed in working with disadvantaged students. Based on your perceptions of the teachers participating in the inservice training program, rate the teachers' competency on each of the tasks. Please respond by circling one number for each task.	Not Confident (1)	Little Knowledge (2)	Undecided (3)	Confident (4)	Extremely Confident (5)
9. Analyze disadvantaged students occupational interests and aptitudes.	1	2	3	4	5
10. Help disadvantaged students develop positive attitudes about themselves and the world of work.	1	2	3	4	5

Q-SORT STATEMENTS

1. My knowledge of identifying the types of disadvantagement (academically, economically, limited English speaking), has increased.

2. I have learned very little about instructional materials and curricula for disadvantaged students.

3. I am convinced that disadvantaged students have more learning ability than I had given them credit for.

4. I am convinced that disadvantaged students are actually superior to other students in certain ways.

5. I am no more self-confident in working with disadvantaged students than I was 10 weeks ago.

6. I have been more supportive of disadvantaged students during the last 10 weeks.

7. I have collected more information about the backgrounds of my disadvantaged students.

8. The inservice training has led me to give disadvantaged students more individualized instruction and attention.

9. I teach disadvantaged students about the same way I did 10 weeks ago.

10. My disadvantaged students are as disinterested in school as they were 10 weeks ago.

11. My disadvantaged students still have a lack of self-confidence.

12. My disadvantaged students are reading better than they were 10 weeks ago.

13. I received valuable advice from the trainer who worked with me concerning teaching disadvantaged students.

14. The films, tapes, and resource materials were valuable to me.

15. The reading that I did as part of the training was of little value to me.

16. The material on the learning problems of disadvantaged students was of little value.

17. The material on doing a readability study was of little value.

18. Being introduced to special instructional materials for disadvantaged students was valuable.

19. The lectures presented during the training were valuable to me.

20. I like disadvantaged students no better than I did 10 weeks ago.

21. The material on curricula appropriate for disadvantaged students was of little value.

22. The material on teaching methods appropriate for disadvantaged students was valuable.

23. The materials on how to teach specific units in the subject area were of little value.

24. The material on identification and assessment of disadvantaged students was valuable.

25. The material on employability skills for disadvantaged students was of little value.

INSTRUCTIONS FOR COMPLETING THE Q-SORT

Enclosed is a packet of 25 cards, each containing a statement with which you may or may not agree as a result of your participation in the inservice training program. Also enclosed are six colored envelopes. Each color represents a rating response as follows:

(Red) - strongly agree with these statements

(Orange) - agree with these statements

(Purple) - undecided

(Yellow) - disagree with these statements

(Green) - strongly disagree with these statements

(White) - unable to respond to these statements because I was not involved in this part of the study

You are asked to select five cards for each envelope (red, orange, purple, yellow, and green only), which best fit your response. If the teacher-training component of the program did not include some feature which you are asked to evaluate, place the card in the white coded envelope. If you put any cards in the white coded envelope, you obviously will be unable to place five cards in each envelope, but you are still asked to keep the number of cards in each envelope as nearly equal as possible.

TO ACCOMPLISH THE FINAL RESULT OF Q-SORT, PROCEEED AS FOLLOWS:

1. Go through all of the cards, arranging them first in three piles: one for statements with which you agree, another for those about which you feel undecided, and a third for those with which you disagree. (If you cannot respond to a statement, place that card in the white coded envelope.) You may put any number of cards in each of the three piles in this first sorting, but you will find that subsequent sorting goes more efficiently if you put roughly the same number in each.

2. From the first pile, select the five cards with which you strongly agree and put them on top of the RED envelope. Do not put them inside the envelope yet, because you may wish to shift some later.

3. Next, select the five cards with which you agree and place them on the ORANGE envelope.

4. Now it is best to start at the other end. From the third of the original three piles, select the five cards with which you strongly disagree and place in GREEN envelope.

5. Next, select the five cards with which you disagree and place in YELLOW envelope.

6. Place the remaining cards in the PURPLE envelope (undecided).

7. Go through each pile a final time, changing cards from pile to pile if you like, but making sure that when you have finished, each pile has the same number of cards in it (or within one of the same number, if it is impossible to equalize them exactly). Then put the pile of cards into its corresponding envelope.

IMPORTANT: You may find it difficult to force the same number of cards into each pile and have the feeling, when you are finished, that some of the cards are mismatched with your response to the envelopes into which you have put them. Nevertheless, it is essential to my treatment of the data that you follow these instructions exactly, despite the reluctance you may feel.

Happy sorting! Thank you for your time.

VOCATIONAL EDUCATION TEACHER QUESTIONNAIRE

Please answer the following questions about yourself and school by placing a check (✓) in the appropriate blank, or providing appropriate data in the blank.

1. Sex:

   ____ Male

   ____ Female

2. In what age group are you?

   ____ 24 or less
   ____ 25-34
   ____ 35-44
   ____ 45-54
   ____ 55 or more

3. Highest level of education or type of certificate held:

   ____ High School
   ____ Associate
   ____ Bachelor
   ____ Masters
   ____ Doctorate
   ____ Other

3A. Specify type of certificate held: _____

4. Teaching Subject: _____

5. Teaching Experience: _____ Years

6. Number of years teaching disadvantaged students: _____

7. Are you informed by the administrator/counselor of the disadvantaged students enrolled in your classes? ____ Yes ____ No

8. In what setting is your school located?

   ____ Rural

   ____ Town (10,000-30,000 population)

   ____ Suburban (40,000-100,000 population)

   ____ Urban (100,000 + population)

9. Have you had previous training in working with disadvantaged students? ____ Yes ____ No

10. If answer to #9 is yes, specify:

____ inservice training in school (credit or noncredit)

____ college courses (credit)

____ workshops (credit or noncredit)

____ personal readings

11. Academically disadvantaged has been defined to mean a person who: (1) lacks reading and writing skills, (2) lacks mathematical skills, and/or (3) performs below grade level. According to this definition, approximately what percentage of students in your class do you estimate to be academically disadvantaged?

____ None

____ 1% - 9%

____ 10% - 19%

____ 20% - 39%

____ 40% - 50%

____ Over 51%

APPENDIX C

VOCATIONAL EDUCATION FOR SPECIAL NEEDS LEARNERS COURSE SYLLABUS

SPRING SEMESTER 1984
- OFF-CAMPUS -

The Pennsylvania State University
Division of Occupational and Vocational Studies

Course Description: Voc. Ed. 413 - Vocational Education for Special Needs Learners

An overview of contemporary legislation; identification assessment, and instructional development strategies for handicapped and disadvantaged students in vocational and practical arts education.

Instructors: Dr. Jerry L. Wircenski
110C Rackley Building, University Park, PA 16802
863-2576 Office 234-3640 Home

Thrisha G. Shiver 863-2580 Office 865-7165 Home
Debbie Brown 863-2580 Office

Credits: 3

Text: REQUIRED - Sarkees, M. & Scott, J., Vocational Special Needs, Preparing T & I Teachers, ATP, Inc., 1982.

Optional - Meers, Gary, Handbook of Special Needs Education, Aspen Systems, 1980. (ON RESERVE AT LCAVTS)

Objectives:

Upon completion of this course, you shall be able to:

1. Describe the major legislative provisions affecting the delivery of vocational education to special needs populations.
2. Identify and describe the educational characteristics of special needs populations, including students identified as handicapped, disadvantaged, and limited English proficiency.
3. Describe and use appropriate strategies for assessing the vocational needs and progress of special needs learners.
4. Select and use appropriate instructional methods, procedures, and materials for special needs students.
5. Identify and select appropriate community, school, governmental agency, occupational and professional resources.
6. Develop an individual education plan for a special needs learner(s) enrolled in a vocational education program.
7. Evaluate the major professional trends, issues, and implications for vocational education programming for special needs populations.

Methods:

Group discussions, resource persons, outside reading assignments, and hands-on activities will be utilized in the structure of this class.

Requirements:

50% — 1. Class attendance and participation
50% — 2. Successful completion of small written assignments and quizzes, as scheduled. (Including IEP Project.)

50% — 3. Develop a term project related to an issue involving the vocational training of special needs learners (topic must be discussed and approved by your instructor)

Attachment -A-

INSTRUCTIONAL DEVELOPMENT PROJECT: Each student will undertake an instructional development project. The purpose of the project is to provide you with an opportunity to develop whatever material or information you feel is essential for improving your ability or capacity to serve special needs learners in vocational education. The instructional development project is the primary vehicle for translating the knowledge gained from the course into a product that is useful to you, as well as other professionals in the field.

The following is a list of potential projects:

- Develop and disseminate a community and school resource directory describing the services and resources available to support special needs students enrolled in vocational education programs.
- Revise an existing vocational curriculum so that it contains instructional information useful for special needs students (e.g., vocabulary lists, math concepts, etc.)
- Develop and try out a series of work samples that can be used to assess the interests and performance levels of special needs students in a vocational program.
- Develop a handbook for identification of special needs students in your program or school district.
- Develop a handbook with tips for teaching special needs students in a particular vocational program area.
- Conduct a needs assessment survey to determine the nature and extent of inservice training needed to accommodate special needs learners in a local vocational educational program.
- Prepare an annotated bibliography on instructional/curriculum materials for vocational program areas.
- Develop a diagnostic test(s) that can be used to place students in appropriate vocational programs and plan appropriate instructional experiences.
- Develop or modify a set of instructional materials to be used in teaching special needs students a critical concept, attitude, or set of job skills.
- Other instructonal development projects that are consistent with your interests and needs as they relate to special needs learners.
- Prepare a resource/reference guide describing available vocational assessment instruments/batteries which can be used with special needs learners.
- Prepare a resource/reference guide describing available inservice teacher education materials which are focused on vocational and special learners.

PROJECT SELECTION: Several factors need to be considered in selecting projects:

1. The project should result in a product (e.g., teacher's handbook, curriculum guide, resource directory, etc.), or a written report (e.g., inservice needs assessment report or a program or evaluation report).
2. The product or report should be useful to other teachers, counselors, or administrators in addition to yourself.

Attachment -8-

IEP - OUT OF CLASS ASSIGNMENT: The Individualized Education Program (IEP) provision of P.L. 94-142 is having a tremendous effect upon vocational instruction of special needs students. Much of the information presented in the course will relate either directly or indirectly to writing, implementing or evaluating IEPs.

In order to refine your skills in this process, you will be asked to develop one (1) complete IEP during the semester.

1. If you are teaching or counseling special needs students this semester, it may be appropriate to develop IEPs for these students.

2. If you are not presently working with special needs students, you should work with a special education teacher, consultant or counselor (who may or may not be in the course) in developing the IEPs.

3. Special education and guidance personnel should work with a vocational education instructor or coordinator to develop IEPs that could be used in a specific vocational program.

4. Each IEP should be written for students with dissimilar learning problems.

5. Example forms, suggested content and guidelines for developing the IEPs will be presented in class during the early part of the semester.

Each IEP must include a total service plan and several individual intervention plans which, in total, provide:

* A statement of annual educational goals
* Specific instructional objectives (stated in performance or behavioral terminology)
* Description of the learner's present level of education performance
* Specific educational services needed by the learner
* All special education and related services required
* Description of the extent of the learner's participation in the regular education program
* Special instructional media, materials, and methods to be used
* A list of individuals responsible for implementation of the IEP
* Objectives criteria, evaluation procedures, and schedules for determining the extent to which the instructional objectives are attained

By developing an IEP in this simulated activity, vocational instructors will become familiar with several types of special learners, as well as the appropriate support services and teaching strategies.

Suggested
Reference Texts:

Cartwright, Cartwright & Ward. Educating Special Learners. Wardworth Publishing Company, 1981. (ON RESERVE AT LCAVTS)

Meers, G. D. Handbook of Special Vocational Needs Education. Aspen Systems Publication, 1980. (ON RESERVE AT LCAVTS)

Sarkees, M. & Scott, J. Vocational Special Needs, Preparing T & I Teachers. ATP, Inc., 1982.